# Growing Green Ideas

Many people still believe that industry is the greatest source of water pollution. The truth is that it is not only industry that is responsible for pollution—it is all of us! According to Environmental Protection Agency (EPA), over 60% of our water pollution comes from urban and agricultural storm water runoff (non-point source pollution).

Public education and outreach and public participation and involvement are sometimes hard to achieve. Successful implementation of effective storm water pollution programs depends on the public commitment to these programs. Many communities around the country, however, have thriving programs that are helping meet these standards, by using a diverse mix of volunteer participation. In this section, various storm water growing green ideas that our community can implement to reduce the discharge of pollutants with the goal of protecting water quality.

According to the Environmental Protection Agency (EPA), storm water runoff is the most common source of water pollution. Identifying storm drains by marking them provides a way to heighten public awareness about the relationship between water quality and storm drainage systems. By raising public awareness of urban runoff, storm drain inlet marking should discourage practices that generate non-point source (NPS) pollutants as well as the dumping waste and chemicals down storm drains.

**GROWING GREEN IDEA: "Storm Drain Inlet Marking"**

Many people believe storm drains are connected to a sewer treatment system. But in most communities, whatever enters these storm drains is discharged directly into a neighboring body of water without benefit of treatment. Marking storm drain inlets (aka: catch basins), alerts residents to the fate of storm water runoff and the pollution carried with it from lawns and streets. Marking these structures won't solve water pollution problems alone, but it's a practical, positive, easy first step.

**Storm Drain Inlet Marking**

These are labeled manufactured markers and adhesive disc that are placed next to a storm drain inlet (aka: catch basin), with a message cautioning residents "NO DUMPING – DRAINS TO WATERWAYS", as shown in picture.


The City of Green Bay will provide the storm drain inlet makers/adhesive disc, door hangers, safety vests, a few other needed supplies and the "Storm Drain Inlet Marker Installation Project Instructions" guide to groups who are interested in taking that practical, positive, first step toward public education and active involvement in storm water pollution prevention.

**GROWING GREEN IDEA: "Adopt A Storm Drain Inlet"**

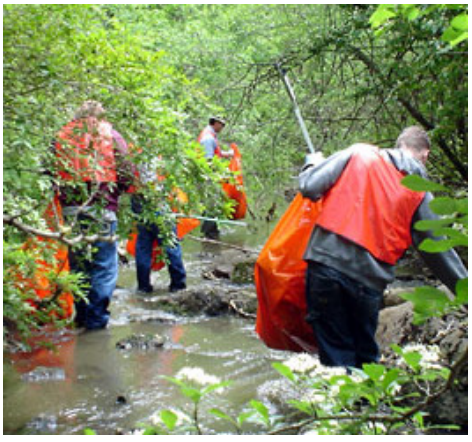
This is a relatively easy idea, the Department of Public Works is asking residents to participate in "Adopt A Storm Drain Inlet". We are asking residents who have a storm drain inlet (catch basin) in front of their house or nearby, to make sure they are cleared of any trash and debris that is obstructing the flow to avoid street flooding. Residents will be asked to do two simple things:
1. Remove trash/debris from grates (especially before and after a rain event or snow melt),
2. Contact the Department of Public Works if the structures is deteriorating or failing.

Not only will you be preventing street flooding by adopting a storm inlet, but you will help to eliminate the algae that occur in our waterways in summer. When you mix rain and leaves, you create a "Leaf Tea", which creates algae in our waterways.


Rain & Leaves "Leaf Tea" Algae

For those residents that conveniently live near a creek, the idea of "Adopting A Creek", is as easy as walking out your backyard and picking up any trash and debris along the way. It enables the City's environmentally conscious residents to make a personal contribution to a cleaner environment.

**GROWING GREEN IDEA: "Adopt A Creek"**



You need to get your hands a little dirty to truly learn about nature. A few hours collecting litter from a local creek establishes a link between citizens, community waterways and their watersheds. You see firsthand how your cleanup work improves a waterway's quality and appearance. Volunteers who "Adopt A Creek" in the City of Green Bay are asked to pick up litter along a creek, river or stream one maybe two times a year (Spring for sure). This gives volunteer groups an opportunity to improve water quality locally. Adopting a creek is simple. It only takes one person to get things started. Community organizations, school groups, businesses, neighborhood associations or any environmentally concerned citizen can "Adopt A Creek". Volunteers adopt their favorite stretch of waterway (creek, river or stream) anywhere in the City of Green Bay.

For those residents that adjoin a pond, the idea of "Adopting A Pond", is as easy as walking around the pond and collecting the trash and debris along the way.

**GROWING GREEN IDEA: "Adopt A Pond"**

This idea is a means by which interested residents, community groups and neighborhood associations can adopt a storm water management area within the city of Green Bay to provide oversight and minor maintenance such as trash and debris removal in these areas on a regularly scheduled basis. The best would be to schedule a maintenance day in the spring and one again in fall.

Within the City of Green Bay limits, you will find areas that have ditches flowing along the roadways. For those residents that have a ditch nearby, the idea of "Adopting A Ditch", is the help needed to prevent flooding along the roadways.

**GROWING GREEN IDEA: "Adopt A Ditch"**

Roadside ditches are hydrologic networks superimposed onto watersheds and their impact on flooding and water qualities have been largely ignored. Debris, grass clippings, leaves and trees/shrubs within the ditch or swale will inhibit the flow of storm water and cause flooding. Make inspecting the ditch a part of your regular property maintenance routine. Remove debris and trash that will impede the flow of storm water runoff. Keep culvert openings clear from accumulated debris to allow the water to flow through the culvert. These small preventative measures by residents will go a long way in preventing a flooding issue. Properly dispose of the trash and debris. It's very important that water flow along ditches and not stand in them. Vegetation in ditches is necessary to help keep the soil in place and minimize erosion. Through "Adopt A Ditch" committed partners gain a sense of ownership, as they help maintain and implement future improvements of the ditches and swales. "Adopt A Ditch" today, and together we can work to improve our community environment.

Within the City of Green Bay limits, you will find some greenways, parkways, conservancy or environmental sensitive areas that any resident can walk along and enjoy the scenic view. As you're walking, grab yourself a garbage bag and pick up the trash and debris along the way.

**GROWING GREEN IDEA: "Protecting Our Greenways"**

The purpose of designating greenway areas are: to preserve significant environmental features from encroachment of sewer development. These areas perform a variety of important environmental functions including storm water drainage, flood water storage, pollutant entrapment and the provision of wildlife habitat. They can also provide desirable green space to enhance urban aesthetics.

Greenways, Parkways, Conservancies and Environmental Sensitive Areas located in the City of Green Bay are

Baird Creek Parkway, Barina Creek Conservancy, Beaver Dam Creek Parkway, Duck Creek Parkway, Ellis Creek South Branch Parkway, LaCount Parkway, Mahon Creek Parkway, Newberry Conservancy, Nicholson Creek, and Willow Creek Parkway


Recycle the rain. It's free, there's a lot of it, and it's nature's way of quenching thirst. Why would you use anything else to water your plants!

**GROWING GREEN IDEA: A "Rain-Barrel"**

A rain-barrel collects and stores rainwater from rooftops to use later for lawn and garden watering. Water collected in a rain-barrel would normally pour off your roof directly or flow through roof gutter downspouts and become storm water runoff. Depending on your yard, this runoff can travel onto paved surfaces and eventually into a storm drain inlet (aka: catch basin).

**Why Use Rain-Barrels?**

- Rain-barrels conserve water and help lower costs (a rain barrel can save approximately 1,300 gallons of water during peak summer months).
- Rain-barrels reduce water pollution by reducing storm water runoff, which can contain pollutants like sediment, oil, grease, bacteria and nutrients.
- Rain-barrels are inexpensive and easy to build and install.
- A rain-barrel can be used to save water for plants during dry periods. Rain-barrels can also be arranged to slowly release the collected rainfall to areas that can soak up the water, reducing storm water runoff and increasing groundwater recharge.

Water stored in any kind of container represents a risk for small children. Children can drown in as little as a few inches of water. Animals, both wild and domestic may become trapped and drown in your rain barrel if uncovered. Therefore, you should never use an open container for rainwater collection. Make sure you have some way to cover the rain-barrel with a screen or a top is recommended.

There is very little operation and maintenance to a rain-barrel. It is recommended that you remove the existing downspout and elbow intact and store for reinstallation in the late fall. You can then add another downspout section that will need to be custom cut to and appropriate height above your rain-barrel. Two connected downspout elbows (forming an S shape) or hinged extension should sit about two inches above the rain-barrel inlet hole. A cover or a fine mesh screen should be used to cover any openings in the rain-barrel to prevent mosquitoes and to trap debris. Rain-barrels can be installed upon blocks or wooden crate to provide height for gravity flow purposes.

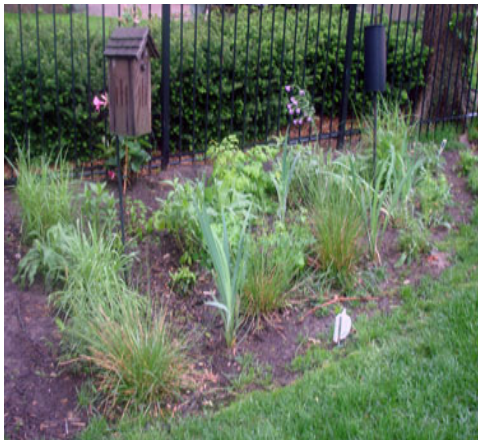
A bit of advice for your rainwater system, always monitor the rain-barrel for overflow, for example, if you leave for vacation for a week and haven't taken precautions to avoid the overflow of water, you may end up with damage to the foundation of your home or other related problem over time. The rain-barrel should be drained and removed for the winter months to prevent ice damage. Constant freezing and thawing of the water in your rain-barrel may weaken the material or cause cracks. Store your rain-barrel upside down in the winter to keep it clean for future use. Ready-made rain-barrels range from $100-$250 each depending on the size, style and added features. Local suppliers may be found by an Internet search on "rain-barrels". Building your own rain-barrel is relatively easy, relatively inexpensive and hassle free.

Years ago people used cisterns to collect rainwater. What are cisterns? A cistern is similar to a rain-barrel, but has much greater storage capacity and requires a little more engineering. Cisterns are above or below ground water storage systems, designed to serve large portions, or all, the water

needs of a building or landscape. You can use a cistern to collect rainwater from your roof, filter the water, store it, and reuse it for your lawn and garden, or in your house for toilet flushing, clothes washing, etc. A cistern is considerably more expensive than a rain-barrel, but can provide for more of your water needs, and may pay for itself in the long run.

Now that you know how to collect rainwater with your rain-barrel, what better way to use the collected water than in your rain garden.

**GROWING GREEN IDEA: A "Rain Garden"**



A "rain garden" is a man-made depression in the ground that is used as a landscape tool to improve water quality. The rain garden forms a "bio-retention area" by collecting water runoff and storing it, permitting it to be filtered and slowly absorbed by the soil. The bio-retention concept is based on the hydrologic function of forest habitat, in which the forest produces a spongy litter layer that soaks up water and allows it to slowly penetrate the soil layer. The site for the rain garden should be placed strategically to intercept water runoff. The rain garden is landscaped with perennial plant species native to our region.

**Why a Rain Garden?**

A rain garden is a natural way for you to help solve some of our storm water pollution problems. It helps to recharge groundwater and protects our water resources. A rain garden keeps rain on your property, where it naturally belongs. By creating a rain garden, you can help improve water quality in local streams, creeks and rivers. You use rain the way nature intended, instead of throwing this resource away.

**Benefits of a Rain Garden**

- Rain gardens are lovely landscaping features.
- Rain garden plants create wildlife habitat and attract butterflies, birds and other wildlife.
- Rain gardens can save you money. They don't need to be fertilized or sprayed, only weeded and mulched. They reduce the amount of lawn you have to maintain. This makes your yard a healthier place for children, pets and the environment.
- A rain garden on your property makes you part of a solution to storm water pollution. Rain gardens can potentially absorb hundreds of gallons of rain that would otherwise wash pollution down the street and into the nearest river, creek or stream. Rain gardens can even absorb a lot of rain.
- A rain garden can be part of a storm water reduction plan to help solve problems of combined sewer overflows.
- Rain gardens can actually remove many of the common pollutants in storm water.
- A rain garden can contribute to groundwater recharge, a natural process that is interrupted by soil compaction and hard surfaces created during development and building.

- A rain garden project can educate the public about the problems that storm water runoff creates, while giving people a beautiful solution.

When designing your rain garden, choose the right place. Where there is a "pond" or depression into which the water will flow and the soils will absorb the water. Note the direction of runoff and low spots where water collects. Avoid creating a rain garden too close to building foundations and be aware of right-of-way and underground service lines or utilities. You can re-direct the rain if the rain doesn't flow naturally to your chosen spot. If your land slopes, you can create a flat area for your rain garden in several ways. Locate your rain garden away from trees and don't excavate an extensive rain garden under large trees; trees have a root system which can interfere with the excavation of the rain garden.

The next step is to evaluate your soil. It is best if you understand the kind of soils you are working with and put in a garden suitable to the conditions you already have. Drainage is important so test your soil's infiltration rate. Dig a hole 8 inches wide and 8 inches deep, fill the hole with water and see how long it takes the water to drain. The water needs to go down an inch per hour. If it takes longer than that, you will need to do additional site preparation to improve infiltration. If you have very poor drainage in your existing soils, and your garden preparations still leave you with slow absorption rates, make your depression shallower to reduce the water that gets trapped there. If your soil sucks up water, make your garden deeper to increase its storage capacity. It's generally best to keep the bottom of your rain garden's depression flat; saucer-shaped rather than bowl shaped. That way, the rainwater will always spread out as much as possible.

Now it's time to develop your rain garden design. The key to designing is that you must adapt your garden to the local conditions of your site.

Now you must prepare your rain garden site. Define the borders and shape of your garden at the location you have selected. Do you need soil replacement? Do you need to improve the soil you have? Adding compost or other organic matter is the best way to enrich your soil. Do you need to grade the area? These are just a few questions to ask yourself when preparing your site.

Now comes the fun part. In selecting the right plants for your garden, we recommend using native plants in your rain gardens. Plants that are native to our area can adapt to our weather, soils and ecosystems. Native plants also have natural relationships with native butterflies, insects, birds, animals and other plants. Native plants have deep roots. The deep roots of many established native plants increase the ability of soil to hold water and prevent erosion. Native plants cannot be found at local nurseries, so contact a professional nursery that specializes in native plant species; you can do an Internet search on "native plant species". **Please do not take your plants from the wild.** Doing so disturbs local plant ecosystems and is often illegal.

It's time to plant the garden. The advantage of using native plant species is that once established they thrive with little care. Although they are low maintenance, it doesn't mean "NO" maintenance. Put the right plant in the right place. For example; if the garden is in a shady area, do not use plants that require sun. Choose with the needs of the plant in mind. If a plant is not doing well in a

location, move it. If you use a design with tall plants, think how this will affect the view. Using mulch makes things easier; mulch keeps the soil moist, protects your plants, discourages weeds and makes weeds easy to remove. A rain garden is a garden, not merely a functioning infiltration system. Rain gardens can and should be beautiful, an attractive improvement to your property. Rain gardens also tend to become wildlife oases so expect songbirds, butterflies, color, fragrances and sounds. Depending on your neighborhood, you may have squirrels, rabbits or deer visiting your garden regularly.

Care is another part of your rain garden project. You have worked hard to create your rain garden and to keep it working well and looking its best, some regular care is required. If it doesn't rain, water your plants until they are established. The rain barrel you invested in will supply the fresh rainwater for those plants. When you are watering the plants and notice a break strong water flow, a few strategically placed rocks, boulders, or stone dams in the area can help to slow down the water. Each spring, apply mulch to your rain garden with 3 inches of fresh shredded hardwood mulch. Mulch keeps the garden moist and sponge-like, ready to absorb rain. Mulch also gives your garden a formal appearance that many people find attractive. Regular weeding of the rain garden is essential. A nicely prepared rain garden is a great place for invasive plants to start growing. This is where mulch comes in handy; it will be simple to just pull those little seedlings out before they get established. If you have trouble-identifying weeds check internet sites for assistance. With all the effort you have put into your rain garden, maintaining the plants is an important step. If a plant isn't thriving where you put it, don't be afraid to move it to another location. A rain garden has different zones of wet, wet to dry and dry areas and sometimes it isn't easy to tell exactly where a particular plant will thrive until it has rained a few times. A rain garden is a living system; go with the flow.

**Did You Know:**

Compare to a patch of conventional lawn, a rain garden allows about 30 percent more water to soak into the ground. For more information on rain gardens check out the WDNR website at:

http://dnr.wi.gov/topic/Stormwater/raingarden/

**How You Can Make A Difference**

Water pollution affects us all. Although there are no easy solutions, our hope for the future is a generation of informed and concerned residents working together to alleviate the problem. One valuable contribution we all have is to **"GET INVOLVED"**.